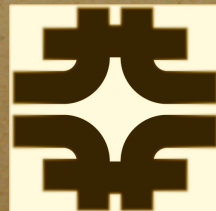
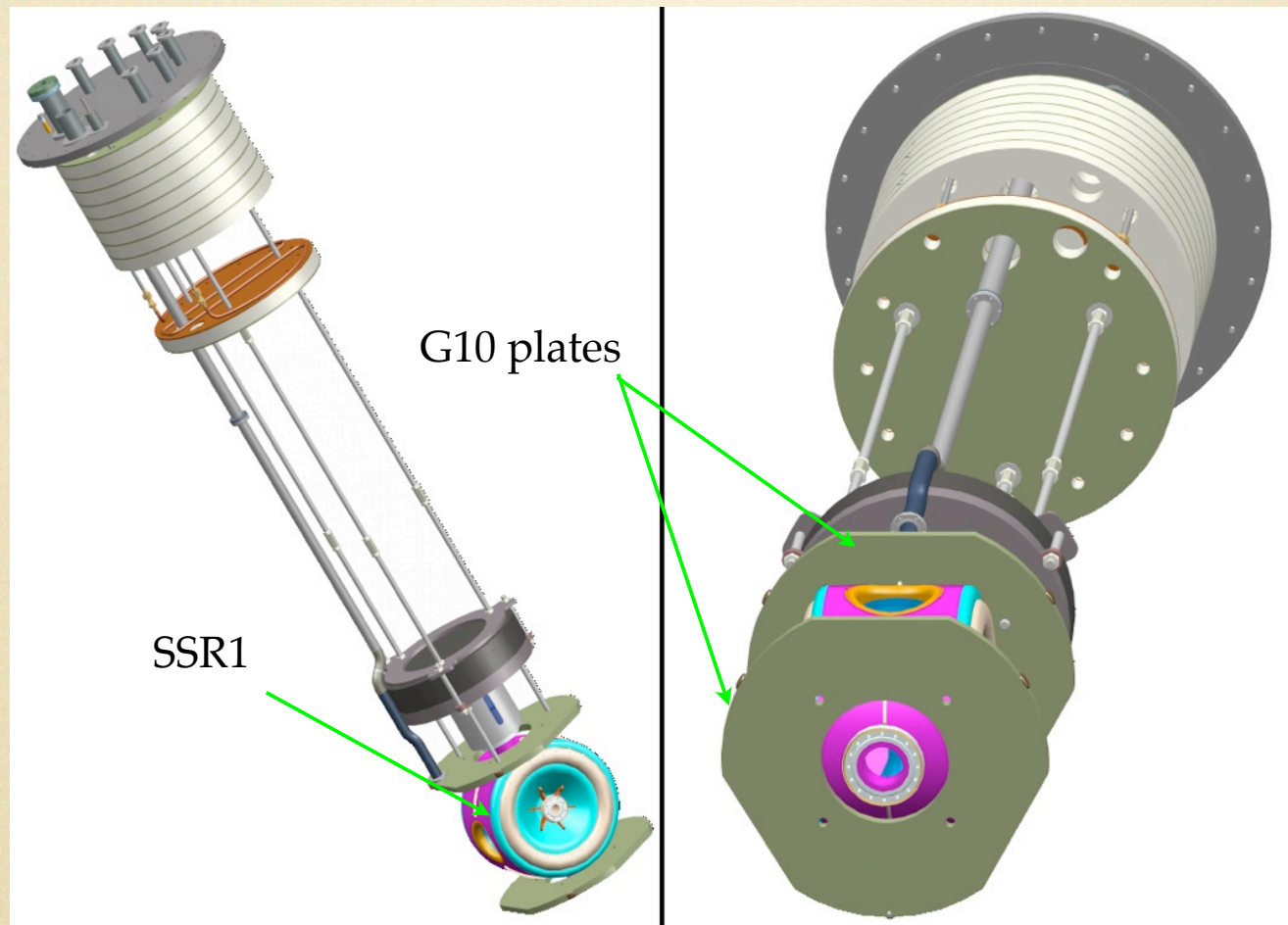


SSR1 Test in
IB1 Vertical Cryostat
-
Feasibility Study

G.Lanfranco



The cavity fits within the footprint of the G-10 support plate used for ILC elliptical cavities



courtesy of C.Reid



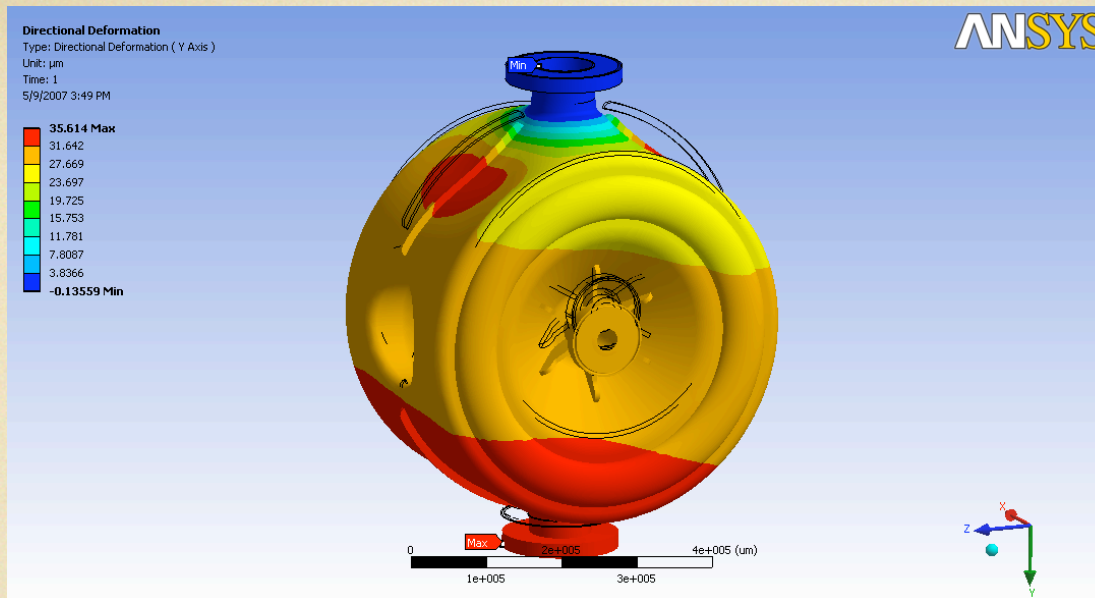
FEA

- SSR1 mass ~ 42.5 kg (94 lb)
- Cavity constrained at the top power coupler flange
- Only gravity is applied

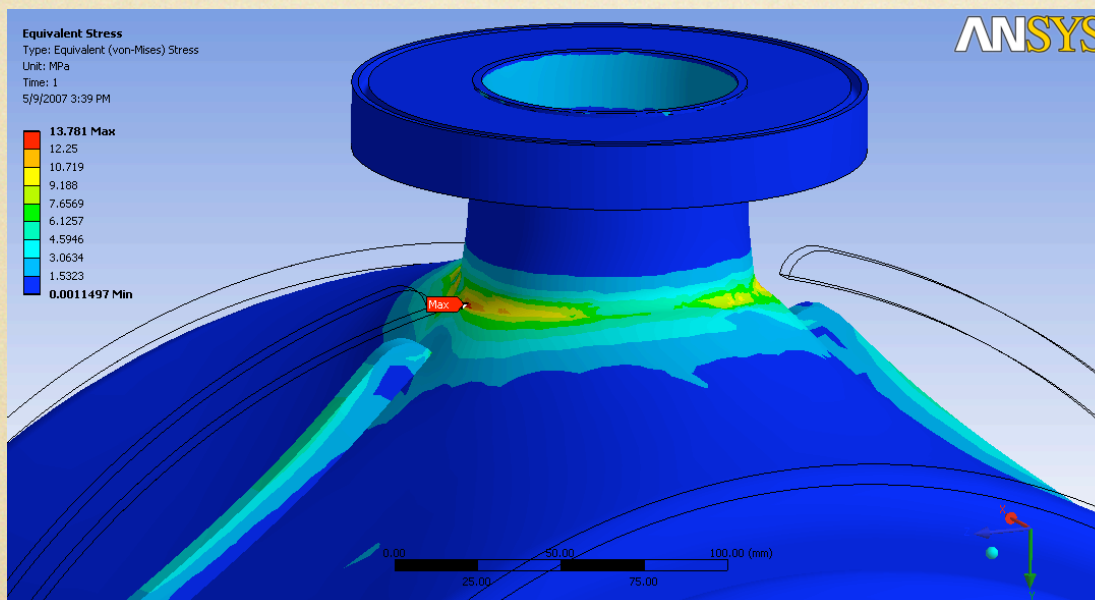
RESULTS

- Reaction force = 416.4 N
- Max vertical displacement = 36 μm
- Max von Mises stress = 13.8 MPa ($\sigma_{02} = 48 \text{ MPa min}$)





Vertical Displacement
 $[\mu\text{m}]$



Von Mises stress
 $[\text{MPa}]$



Conclusion

- The HINS SSR1 fits into the IB1 Vertical cryostat
- The cavity can be supported “sandwiching” it between two G10 plates interconnected by rods (like currently done with the elliptical cavities). However a simple FEA shows that simply hanging the cavity is mechanically acceptable (Frequency shift ok?).

